

Montana Board of Oil and Gas Conservation
Environmental Assessment

Operator: Continental Resources, Inc.
Well Name/Number: Ruben 1-9H
Location: SW SE Section 9 T26N R55E
County: Richland, **MT;** **Field (or Wildcat)** W/C (Bakken Horizontal)

Air Quality

(possible concerns)

Long drilling time: No, 30 to 40 days drilling time.

Unusually deep drilling (high horsepower rig): No, triple derrick drilling rig to drill to 19,979'MD/9,891'TVD, single lateral horizontal Bakken Formation well.

Possible H2S gas production: Slight chance H2S gas production.

In/near Class I air quality area: No Class I air quality area.

Air quality permit for flaring/venting (if productive): Yes, DEQ air quality permit required under 75-2-211.

Mitigation:

☒ Air quality permit (AQB review)

☒ Gas plants/pipelines available for sour gas

☐ Special equipment/procedures requirements

☐ Other: _____

Comments: No special concerns – using triple rig to drill to 19,979'MD/9,891'TVD, single lateral horizontal Bakken Formation well.

Water Quality

(possible concerns)

Salt/oil based mud: Yes, freshwater and freshwater mud system on surface hole and oil based invert drilling fluids for intermediate casing hole. Brine water will be used to drill the horizontal lateral.

High water table: No high water table anticipated.

Surface drainage leads to live water: No, closest drainage is Dugout Creek, an ephemeral tributary drainage to Hard Scrabble Creek, about ¼ of a mile to the northwest from this location. Dugout Creek meets Hardscrabble Creek, about 3.25 miles to the northeast from this location.

Water well contamination: No, closest water wells are about ½ of a mile to the north northwest and about 1 mile to the southwest from this location. Depth of these water wells range from 103' to 232'. Surface hole will be drilled with freshwater and freshwater drilling fluids. Surface casing will be set and cemented to surface from a depth of 1430'.

Porous/permeable soils: No, sandy clay soils.

Class I stream drainage: No Class I stream drainages.

Mitigation:

☒ Lined reserve pit

☒ Adequate surface casing

☐ Berms/dykes, re-routed drainage

☐ Closed mud system

☐ Off-site disposal of solids/liquids (in approved facility)
☐ Other: _____
Comments: 1430' of steel surface casing cemented to surface is adequate to protect freshwater zones and cover the Fox Hills aquifer.

Soils/Vegetation/Land Use

(possible concerns)
Stream crossings: No, stream crossings, crossing only ephemeral drainage of Dugout Creek, anticipated.
High erosion potential: Yes, small cut, up to 9.1' and small fill, up to 9.0', required.
Loss of soil productivity: No, location will be restored after drilling, if nonproductive. If productive unused portion of drillsite will be reclaimed.
Unusually large wellsite: Yes, large 500'X300' location size required.
Damage to improvements: No, slight.
Conflict with existing land use/values: Slight, surface use grasslands.

Mitigation

- ☐ Avoid improvements (topographic tolerance)
- ☐ Exception location requested
- ☒ Stockpile topsoil
- ☐ Stream Crossing Permit (other agency review)
- ☒ Reclaim unused part of wellsite if productive
- ☐ Special construction methods to enhance reclamation
- ☐ Other _____

Comments: Access will use existing county road, #146. About 3508' of new road will be built into location off the existing county road #146. Drill cuttings will be disposed of in the lined reserve pit. Oil based invert drilling fluids will be recycled. Completion fluids will be trucked to a commercial Class II disposal. Cuttings pit will be backfilled after remaining fluids have evaporated. No special concerns.

Health Hazards/Noise

(possible concerns)
Proximity to public facilities/residences: Closest residences, none within 1 mile in any direction from this well location.
Possibility of H2S: Slight chance of H2S.
Size of rig/length of drilling time: Triple drilling rig/short 30 to 40 days drilling time

Mitigation:

- ☒ Proper BOP equipment
- ☐ Topographic sound barriers
- ☐ H2S contingency and/or evacuation plan
- ☐ Special equipment/procedures requirements
- ☐ Other: _____

Comments: Adequate surface casing and operational BOP equipment will mitigate any issues.

Wildlife/recreation

(possible concerns)
Proximity to sensitive wildlife areas (DFWP identified): None identified.

I conclude that the approval of the subject Notice of Intent to Drill (does/**does not**) constitute a major action of state government significantly affecting the quality of the human environment, and (does/**does not**) require the preparation of an environmental impact statement.

Prepared by (BOGC): /s/Steven Sasaki
(title:) Chief Field Inspector
Date: January 13, 2012

Other Persons Contacted:

Montana Bureau of Mines and Geology, GWIC
website
(Name and Agency)
Richland County water wells
(subject discussed)
January 13, 2012
(date)

US Fish and Wildlife, Region 6 website
(Name and Agency)
ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES
MONTANA COUNTIES, Richland County
(subject discussed)

January 13, 2012
(date)

Montana Natural Heritage Program Website (FWP)
(Name and Agency)
Heritage State Rank= S1, S2, S3, T26N R55E
(subject discussed)

January 13, 2012
(date)

If location was inspected before permit approval:

Inspection date: _____

Inspector: _____

Others present during inspection: _____